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December 30, 1993

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N. W.
Washington, D. C. 20554

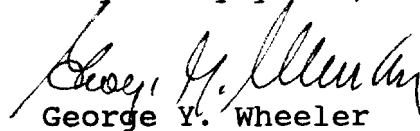
Re: Personal Communications Services - Gen. Docket
No. 90-314 (RM-7140, RM-7175, RM-7617)

Dear Mr. Caton:

Transmitted herewith on behalf of Telephone and Data Systems, Inc. ("TDS") are an original and eleven copies of the attached supplemental comments regarding the technical/engineering aspects of certain petitions for reconsideration filed in the above-referenced proceeding. It is requested that these supplemental comments be associated with the record in this docket.

In the event that there are any questions concerning this matter, please communicate with the undersigned.

Very truly yours,


George Y. Wheeler

Enclosure

cc: All Parties

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GEN Docket 90-314

December 30, 1993

Comments on
Technical Issues of
Telephone and Data Systems, Inc.

1. Application Filing Requirements

TDS response to petitions of: American Personal Communications (Page 3), Telocator (Page 53)

- It is technically unnecessary to require +/- 5 meter resolution for determining Height Above Average Terrain (HAAT). This level of accuracy is difficult to achieve even using GPS, while a more appropriate one second accuracy is attainable using 7.5 minute maps which are readily available and cost effective.

2. Increasing basestation power limits (1000-1900W ERP) and creating a new class of mobile with 12 watts ERP.

TDS response to petitions of: American Personal Communications (Page 3), Ameritech (Page 5), MCI (Page 25), Motorola (Page 27), NTI (Page 33), Pacific Bell/Nevada Bell (Page 36), PacTel Corp (Page 38), Sprint (Page 48), Telocator (Page 53), Time Warner (Page 56), US West (Page 59)

- Good system design sets natural limits on basestation transmitter power; however, reverse link (mobile-to-base) characteristics must be considered as well. Transportability across markets may be adversely affected when taking lower power portables into high power basestation areas. The base will be able to "talk-out" to the mobile over extended distances, while the portable may not be able to "talk-back" to the base at the current .3 Watt design criteria. Alternately, taking a 12 Watt mobile into a system designed for lower uplink and downlink power levels may cause unacceptable levels of interference.
- Linear amplifiers at 2 GHz providing the ERPs suggested will likely prove to be cost prohibitive and difficult to implement satisfactorily.
- The Commission should evaluate modification of the coverage rules and deployment of new technologies such as the Northern Telecom "Smart Antenna" before any

decision to allow such radical increases in basestation power.

- Increased base station power may affect OFS interference which impacts PCS-OFS coordination. Modification of the current PCS-OFS distances and power-height limits must conform to any increase in basestation power.

3. **Uplink/Downlink frequency assignment flexibility.**

TDS response to petition of: Ericsson (Page 18)

- Under current rules, "the 'block A' licensee may use the lower portion of the paired allocation for mobile-to-base operations, and the 'block B' licensee may use the lower portion of the paired allocation for base-to-mobile operations." If the licensees choose to make these assignments, TDS believes that excessive interference can occur, which may not be eliminated through the application of practical engineering methods or because of the limitations of existing filter technology. TDS strongly suggests that the Commission mandate base-to-mobile and mobile-to base operations in other than adjacent spectrum.

4. **Setting PCS Standards**

TDS response to petition of Motorola (Page 27)

- The Commission should take steps to see that a national standard is created, balloted, approved and implemented as promptly as possible. It may be in the best interests of customers for the Commission to challenge the industry by establishing an implementation schedule. However, industry should remain solely responsible for creating the standards and administering the approval process.

5. **Interference Standards**

TDS response to petitions of: Alcatel (Page 1), American Petroleum Institute (Page 4), Ericsson (Page 18), Motorola (Page 27), TIA (Page 50), Telocator (Page 53)

- Allowing any number (more than 1) of methods for calculating estimated interference between PCS and OFS can only foster uncertainty and any number of endless disputes. The Commission should endorse the

interference model included in the revised TIA TSB10-F. While the efficacy of the document is currently under scrutiny by several industry groups (TIA TR 14.11 in particular), it will ultimately have industry consensus.

- PCS operators will initially need to rely upon the Appendix D procedures in the Commission's Second Report and Order in GEN Docket 90-314, for calculating OFS interference. In this regard, improvements involving propagation modeling and urban correction factors need to be addressed.

6. **Interoperability Standards**

TDS response to petition of National Communications System (Page 30)

- The PCS industry cannot afford to wait as long as did the cellular industry for standards addressing interoperability. For cellular, IS41 has provided the platform for interoperability; nevertheless, there is no "B-side" equivalent to the North American Cellular Network (NACN) which makes seamlessness impossible throughout the "B-side" and certainly with the "A-side." The importance of having PCS systems interoperable within and among themselves as well as with the public network cannot be stressed enough. The Commission should address timeframes for interoperability and nationwide roaming for the PCS industry without becoming a principal in the creation of the standards.

7. **CAI Standards**

TDS response to petition of TIA (Page 51)

- The Commission should require that all PCS type-accepted equipment in the 1.8-2.2 GHz band meet standards developed by ANSI accredited bodies. As with interoperability, the lack of a common air interface (CAI) would most likely deny customers the ability of nationwide roaming using the same customer unit.

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